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STEIN, MCEWEN & BUI, LLP 1400 EYE STREET, NW SUITE 300 WASHINGTON, DC 20005			LAMB, CHRISTOPHER RAY	
			ART UNIT	PAPER NUMBER
			2627	

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/684,837

Applicant(s)

HWANG ET AL.

Examiner

Christopher R. Lamb

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-53 and 53-59, renumbered 1-60 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-60 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 10/10/03, 10/20/03
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

1. There are two claim 53's. Under CFR Rule 1.126, the Examiner has renumbered the claims starting with the second claim 53 so that claims 53-59 have been renumbered as claims 54-60, respectively. This Office Action will refer to the claims by their new numbers from this point forward.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore:

- a. a test write pattern with a first mark of length T (claims 3, 34: the drawings specifically show 2T)
 - b. a test write pattern comprising a mark of length 3T and a mark of length 6T, and a space (claims 7, 18, 38, 53: the drawings specifically show 2T+5T)
- must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure

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is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. Claims 43-44 are objected to because of the following informalities: the words "plus" and "pluses" have been used when "pulse" and "pulses" were clearly meant. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-60 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

All of the claims contain subject matter that is depicted in Fig. 9 or Fig. 10 of the specification. However, the figures contradict the written description of the invention in the specification; furthermore, some parts of the specification directly contradict other parts. One of ordinary skill in the art would be unable to make and/or use the invention due to this conflict.

Regarding Fig. 9:

It depicts a test in step 904 in which the 15pp value is checked to see if it is equal to the maximum. If it is, it goes on to 906; if not, it goes back to 905.

This is not how the apparatus is described in the specification. In paragraph 44, for example, it appears that the write and bias powers are fixed and the erase power is varied over a range (1.5mW-2.5mW) as test patterns are written. The RF signals from these test patterns – each which has its own erase power – are measured, and the maximum RF signal of those is found. Then the erase power which was used in the test pattern with the maximum RF signal is chosen as the optimum erase power. However, this maximum is the maximum of the signals written, so the maximum value is not known until all the signals have been written. From the figure, it appears that each individual pattern is tested against some pre-determined maximum value and only if it fails that test is the next power written.

Note that Fig. 9 does match, for example, paragraphs 56-57 of the specification (which describe the figure), but these paragraphs appear to contradict the earlier sections: i.e., paragraph 44.

Regarding Fig. 10:

The problem with this figure is similar to that of Fig. 9: the tests in steps 1004 and steps 1009 the asymmetry, magnitude, or jitter values are compared to a minimum, maximum, or minimum, respectively. Although this matches the parts of the specification which describe the figure (paragraphs 61 and 63), there is no explanation of how the minimum, maximum, or minimum values can be known until all the variations are tested: it appears that this would have to be tested in the same manner as described for the power, in which all the variations are written and then the one that resulted in the lowest asymmetry, etc., is selected.

Fig. 9 and Fig. 10 between them cover all of the subject matter claimed; thus one of ordinary skill in the art would be unable to make and/or use the invention due to the contradictions in the specification.

Note that although these figures are required to enable every claim, claims 22-24 in particular contain subject matter directly associated with the parts of the figures that contradict the specification.

7. Claims 56-57 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Regarding claim 56:

It claims optimizing the shift amount of a starting edge of a first pulse using the magnitude of the radio frequency signal. However, from the specification, it appears that this parameter is optimized using the asymmetry of the signal.

Regarding claim 57:

It claims optimizing the length of the cooling pulse using the asymmetry of the radio frequency signal. However, from the specification, it appears that this parameter is optimized using the magnitude of the signal.

Regarding both claims:

In paragraph 61, the asymmetry is used for dT1, the edge shift, and the magnitude is used for dT2, the cooling length. This is reinforced by Fig. 10, where the parameter dT1 is clearly associated with the asymmetry and dT2 is clearly associated with the magnitude. Since the claims are opposite, one of ordinary skill of the art, reading the specification, would be unable to make and/or use the claimed invention.

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 25-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 25:

This claim is unclear because "the test write pattern" is determined in the last step (line 6), but it is used in earlier steps. Something cannot be used before it is determined. The Applicant may be trying to introduce a second test write pattern in this

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part of the claim, separate from the test write pattern used in the earlier optimum power setting steps: in this case the Applicant should make that clear.

Also, note that the phrase "setting the optimum powers determined in the determining and recording the test write pattern" (lines 2-3) is also unclear because the test write pattern is determined in the last step, but the optimum powers are determined in an earlier step (in claim 12): it is not clear which part this section refers to.

Regarding claims 26-31:

As they are dependent on claim 25, they are similarly rejected.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

11. Claims 1-3, 8, 9, 11-14, 19, 32-34, 42, 47-49, and 60 are rejected under 35 U.S.C. 102(e) as being anticipated by Okubo et al. (US 2003/0081518).

Regarding claim 1, Okubo discloses:

a method of optimizing recording conditions of an optical recording medium
(abstract), comprising:
recording a test write pattern in a plurality of tracks of the optical recording medium (abstract); and

checking a quality of a radio frequency signal reproduced from one of the plurality of tracks in which the write pattern is recorded and which is effected by writing in adjacent tracks to determine the optimized recording conditions (abstract).

Regarding claim 2:

In Okubo the test write pattern comprises a combination of marks of two or more different lengths and a space (paragraphs 41, 43).

Regarding claim 3:

In Okubo the test write pattern comprises a first mark of length T , and a second mark of length NT which is longer than the first mark and in which power is saturated due to the formation of the marks, and a space, and wherein T is a cycle of a recording and/or reproducing clock and N is an integer (paragraphs 41, 43).

Regarding claim 8:

In Okubo the checking further comprises optimizing power conditions for the test write pattern using a magnitude of the radio frequency signal (paragraph 40).

Regarding claim 9:

In Okubo the checking further comprises optimizing a condition of the write pattern using the magnitude of the radio frequency signal (in Okubo the "condition of the write pattern" optimized is the power level of the pattern: paragraph 40).

Regarding claim 11:

In Okubo the checking further comprises optimizing a condition of the write pattern using a jitter value of the radio frequency signal (in Okubo the "condition of the write pattern" optimized is the power level of the pattern: paragraph 42).

Regarding claim 12:

Okubo discloses:

A method of determining optimum powers necessary for recording by performing test recording on an optical recording medium, comprising:

recording a test write pattern in a plurality of tracks of the optical recording medium (abstract); and

determining the optimum powers using a magnitude of a radio frequency signal reproduced from one of the plurality of tracks effected by writing in adjacent tracks (abstract, paragraph 40).

Regarding claims 13-14:

All elements positively recited have already been discussed with regards to earlier claims.

Regarding claim 19:

In Okubo the magnitude of the radio frequency signal is determined to be a peak-to-peak value of a radio frequency signal (paragraph 40: that it is the peak-to-peak value is inherent to Okubo's determination of the maximum) for a mark of length T of the test write pattern in which a power is saturated due to the formation of marks (paragraphs 41, 43).

Regarding claim 32:

Okubo discloses:

A method of determining a write pattern by performing test recording on an optical recording medium, comprising:

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recording a test write pattern on the optical recording medium (abstract);
reproducing the test write pattern to output a radio frequency signal (abstract);
and

determining a write pattern using a magnitude of the radio frequency signal
(abstract, paragraph 40, where “determining a write pattern” is interpreted to mean
setting its power level).

Regarding claims 33-34 and 42:

All elements positively recited have already been discussed with regards to
earlier claims.

Regarding claim 47-49:

The specifics of the apparatus claimed have already been discussed with
regards to the earlier method claims (Okubo discloses an apparatus to carry out the
method in Fig. 1). No further elaboration is necessary.

Regarding claim 60:

The recording medium of Okubo uses a fast growth method or nucleation
dominant method for writing thereon (this is inherent to the mediums disclosed by
Okubo: paragraph 4).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 4-7, 15-18, 35-38, and 50-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo.

Regarding claims 4-5:

Okubo discloses (claim 4) a test write pattern comprising a combination of marks of two or more different lengths and a space (paragraph 40); and

discloses (claim 5) a test write pattern comprising a mark of length $2T$ and a mark of length $5T$, and a space (this is within the range disclosed by Okubo: paragraph 40).

Okubo does not disclose to do this "when the optical recording medium uses a run-length-limited (RLL) (1,7) code."

The Examiner takes Official Notice that RLL (1,7) codes are well known in the art. (RLL codes are used in both CDs and DVDs, which Okubo discloses as being mediums the invention is used with).

It would have been obvious to one of ordinary skill in the art to use a test write pattern comprising a mark of length $2T$ and a mark of length $5T$ and a space (and thus one of two or more different lengths and a space) when using a RLL (1,7) code because a mark of length $2T$ and a mark of length $5T$ and a space are within the range disclosed by Okubo and a RLL (1,7) code is well known in the art.

The motivation would have been to use the RLL code appropriate for the media type being used.

Regarding claims 6:

Okubo discloses a test write pattern comprising a combination of marks of two or more different lengths and a space (paragraph 40); and

Okubo does not disclose to do this "when the optical recording medium uses a run-length-limited (RLL) (2,6) code."

The Examiner takes Official Notice that RLL (2,6) codes are well known in the art. (RLL codes are used in both CDs and DVDs, which Okubo discloses as being mediums the invention is used with).

It would have been obvious to one of ordinary skill in the art to use a test write pattern comprising a combination of marks of two or more different lengths and a space because this combination is within the range disclosed by Okubo and a RLL (2,6) code is well known in the art.

The motivation would have been to use the RLL code appropriate for the media type being used.

Regarding claim 7:

Okubo discloses a test write pattern comprising a mark of length 3T and a mark of length 6T, and a space (paragraph 40); and

Okubo does not disclose to do this "when the optical recording medium uses a run-length-limited (RLL) (2,10) code."

The Examiner takes Official Notice that RLL (2,10) codes are well known in the art. (RLL codes are used in both CDs and DVDs, which Okubo discloses as being mediums the invention is used with).

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It would have been obvious to one of ordinary skill in the art to use a test write pattern claimed because this combination is within the range disclosed by Okubo and a RLL (2,10) code is well known in the art.

The motivation would have been to use the RLL code appropriate for the media type being used.

Regarding claims 15-18, 35-38, and 50-53:

These are similar to claims 4-7 and are rejected for the same reasons.

14. Claims 10, 25, 27, 28, and 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo in view of Shoji et al. (US 6,157,609).

Regarding claim 10:

Okubo discloses a method of optimizing recording conditions as discussed above with regards to claim 1.

Okubo does not disclose "further optimizing a condition of the write pattern using an asymmetry value of the radio frequency signal."

Shoji discloses further optimizing a condition of the write pattern (a shift in the first edge position) using an asymmetry value of the radio frequency signal (column 19, lines 19-30). Shoji discloses that this achieves optimized recording (column 2, lines 49-55).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Okubo further optimizing a condition of the write pattern using an asymmetry value of the radio frequency signal, as taught by Shoji.

The motivation would have been achieve optimized recording, as taught by Shoji.

Regarding claims 25, 27, and 40:

All elements of these claims have already been discussed with regards to earlier rejections under Okubo or Okubo in view of Shoji.

Regarding claims 28 and 41:

In the method of Okubo in view of Shoji, when the asymmetry value of the radio frequency signal is a minimum (Shoji: column 19, lines 40-45), a write pattern element indicating a shift amount of a starting edge of a first pulse is determined (Shoji: column 19, lines 19-30).

15. Claims 20-24 and 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo in view of Osakabe (US 5,872,763).

Regarding claim 20:

Okubo discloses a method of determining optimum powers as discussed above with regards to claim 12.

Okubo discloses wherein the determining comprises:

reproducing the test write pattern recorded in a middle track of the plurality of tracks effected by writing on adjacent tracks to output a radio frequency signal (abstract).

Okubo does not disclose "fixing two of write, bias, and erase powers and varying the other one of the write, bias, and erase powers within a range to determine optimum write, bias, and erase powers when the magnitude of the radio frequency signal is at a maximum."

Osakabe discloses fixing two of write, bias, and erase powers and varying the other one of the write, bias, and erase powers within a range to determine optimum write, bias, and erase powers (Fig. 9-10).

Osakabe discloses that this permits optimal recording (column 2, lines 5-10).

It would have been obvious to one of ordinary skill in the art to include in Okubo wherein the determining step comprises fixing two of write, bias, and erase powers and varying the other one of the write, bias, and erase powers within a range to determine optimum write, bias, and erase powers (as taught by Osakabe) when the magnitude of the radio frequency signal is at a maximum (this was already Okubo's optimum power-determining method: Okubo paragraph 40).

The motivation would have been to permit optimal recording, as taught by Osakabe.

Regarding claim 21:

The method of Okubo in view of Osakabe includes setting standard write, erase, and bias powers for recording the test write pattern (the starting powers are standard powers); and recording the test write pattern in the plurality of tracks (Okubo, abstract).

Regarding claim 22:

In the method of Okubo in view of Osakabe the determining comprises:

reproducing, by a radio frequency signal, the write pattern recorded in a middle track of the plurality of tracks effected by writing on adjacent tracks (Okubo: abstract);

detecting an envelope of the radio frequency signal to detect a maximum amplitude of the radio frequency signal (Okubo: paragraph 40, where detecting the envelope is inherent to detecting the maximum);

fixing the write and bias powers and varying the erase power within a range (taught by Osakabe) to determine whether the magnitude of the radio frequency signal is the maximum amplitude value (part of Okubo's method: paragraph 40),

wherein, when the magnitude of the radio frequency is not the maximum amplitude, repeating the reproducing, detecting, and fixing (the process is repeated for multiple power levels: Okubo paragraphs 39-40; it is unclear what part of the specification this particular step refers to, but Okubo appears to perform the overall process in the same manner as the Applicant), and

wherein, when the magnitude of the radio frequency is the maximum amplitude value (Okubo paragraphs 39-40), determining the erase power is an optimum erase power (setting erase power is taught by Osakabe).

Regarding claim 23:

This is similar to claim 22 except it is with regards to the write power; Osakabe teaches setting all three powers similarly.

Regarding claim 24:

This is similar to claim 22 except it is with regards to the bias power; Osakabe teaches setting all three powers similarly.

Regarding claim 54:

All elements of this claim have been discussed with regards to earlier claims.

16. Claims 25-26 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo in view of Tsukamoto (US 7,012,870).

Regarding claims 25-26:

Okubo discloses a method of determining optimum powers as discussed above.

Okubo does not disclose “determining, when the magnitude of the radio frequency signal is a maximum amplitude, a write pattern element indicating a period of time for which a cooling pulse lasts is determined.”

Tsukamoto discloses determining a write pattern element indicating a period of time for which a cooling pulse lasts (column 16, lines 15-21).

It would have been obvious to one of ordinary skill in the art to modify Okubo to include determining a write pattern element indicating a period of time for which a cooling pulse lasts, as taught by Tsukamoto. It would also have been obvious to do so by selecting the period of time corresponding to when the magnitude of the radio frequency signal is a maximum amplitude (because this is already the method Okubo uses to evaluate test pattern quality: paragraph 40).

The motivation would have been to have better reflective properties (taught by Tsukamoto: column 16, lines 15-21).

Regarding claim 39:

All elements of this claim have already been addressed with regards to earlier claims.

17. Claims 25, 29-31, and 42-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo in view of Furumiya et al. (US 6,791,926).

Regarding claim 42:

Okubo discloses a method of determining a write pattern as discussed above in the rejection of claim 32.

Okubo does not disclose "determining the write pattern using a jitter value of the radio frequency signal."

Furumiya discloses determining the write pattern using a jitter value of the radio frequency signal (column 2, line 55 to column 3, line 6). Furuyama discloses that this reduces the effect of variation (column 2, lines 30-40).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Okubo determining the write pattern using a jitter value of the radio frequency signal, as taught by Furumiya.

The motivation would have been to reduce the effect of variation, as taught by Furumiya.

Regarding claims 43-44:

In Okubo in view of Furumiya, when the jitter value of the radio frequency signal is a minimum, a write pattern element indicating a width of the first pulse and a width of multi-pulses is determined (see, for example, Fig. 3: parameters setting the width of the first pulse or the width of multi-pulses are set).

Regarding claims 25 and 29-31:

All elements of these claims have been discussed with regards to earlier rejections.

18. Claims 58 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo in view of Osakabe and further in view of Furumiya.

Okubo in view of Osakabe discloses an optical recording and/or reproducing apparatus as discussed above in the rejection of claim 54, etc.

Okubo in view of Osakabe does not disclose determining "an optimized width of the first pulse using the jitter of the radio frequency signal" or "an optimized width of multi-pulses using the jitter of the radio frequency signal."

Furumiya discloses these elements as discussed in the rejection of claim 42-44 above. It would have been obvious to one of ordinary skill in the art to modify Okubo in view of Osakabe to include this; the motivation would have been as discussed above, as it applies equally well to modifying Okubo in view of Osakabe as it did to Okubo alone.

19. Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo in view of Shoji and further in view of Furumiya.

Okubo in view of Shoji is discussed above.

Okubo in view of Shoji does not disclose "a third detector which detects a jitter of the radio frequency signal."

Furumiya discloses such a detector, as discussed in Okubo in view of Furumiya above. It would have been obvious to one of ordinary skill to modify Okubo in view of Shoji to include this; the motivation would have been as discussed in the combination of Okubo in view of Furumiya above, as it applies equally well to modifying Okubo in view of Osakabe as it did to Okubo alone.

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20. Claims 45-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo in view of Tsukamoto and further in view of Shoji and further in view of Furumiya.

Regarding claims 45-46:

Okubo in view of Tsukamoto, Okubo in view of Shoji, and Okubo in view of Furumiya have been discussed with regards to earlier rejections. Note in particular:

Okubo in view of Tsukamoto disclosed using the magnitude of a signal to set cooling pulse length.

Okubo in view of Shoji disclosed using asymmetry to set a shift amount of a starting edge of a first pulse.

Okubo in view of Furumiya disclosed taught using jitter to set the width of a first pulse and multi-pulses.

It would have been obvious to one of ordinary skill in the art to modify Okubo as taught by Tsukamoto, Shoji, and Furumiya to include all of these elements. The motivation would have been to improve recording quality (each element by itself improves the quality, so combining them all should be a significant improvement).

Given this combination, all elements of claims 45 and 46 have been discussed with regards to the earlier rejections under Okubo in view of Tsukamoto, Shoji, and Furumiya respectively.

21. Claim 56 is rejected under 35 U.S.C. 103(a) as being unpatentable over Okubo in view of Osakabe and further in view of Shoji.

Okubo in view of Osakabe discloses an optical recording and/or reproducing apparatus as discussed in the rejection of claim 54.

Okubo in view of Osakabe does not disclose "wherein the system controller determines an optimized write pattern element indicating a shift amount of a starting edge of a first pulse using the magnitude of the radio frequency signal for the test write pattern."

Shoji discloses determining an optimized write pattern element indicating a shift amount of a starting edge of a first pulse (abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Okubo in view of Osakabe determining an optimized write pattern element indicating a shift amount of a starting edge of a first pulse (as taught by Shoji) using a magnitude of the radio frequency signal for the test write pattern (this is already Okubo's method of evaluating test pattern quality: paragraph 40).

The motivation would have been to optimize the recording pattern.

Conclusion

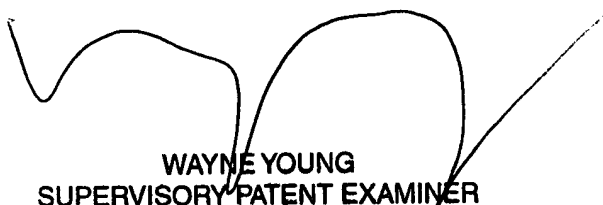
22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kirino et al. (US 5,848,045) discusses setting pulse power and width; Miyashita et al. (US 5,949,747) writes to multiple tracks to set recording, bias, and erase powers.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher R. Lamb whose telephone number is (572) 272-5264. The examiner can normally be reached on 8:30 AM to 6:00 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on (571) 272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CRL 7/20/06



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